DRAFT STAFF REPORT

REGULATION 8, RULE 7
GASOLINE DISPENSING FACILITIES

EXECUTIVE SUMMARY

The Gasoline Vapor Recovery program is a statewide program, as outlined in Health & Safety Code Section 41950 et. seq. and the State Implementation Plan. Primary responsibility for the successful implementation of the program belongs to the California Air Resources Board (CARB). Regulation 8, Rule 7: Gasoline Dispensing Facilities, implements these CARB regulations in the San Francisco Bay Area.

Regulation 8, Rule 7 was last amended on November 17, 1999. These amendments implemented Control Measure SS-08, Emission Reductions From Gasoline Dispensing Facilities from the 1999 San Francisco Bay Area Ozone Attainment Plan, incorporating several measures to enhance the effectiveness of the gasoline vapor recovery, as well as making numerous minor amendments to clarify the applicability and intent of the rule.

On July 25, 2001, the United States Environmental Protection Agency (EPA) issued a limited approval and a limited disapproval of the amended Regulation 8, Rule 7 in the Federal Register (66 Fed. Reg. 38561, July 25, 2001). EPA based their limited disapproval of the rule on the following items:

- The rule cites the California Health and Safety Code (CH&SC) instead of the California Code of Regulations (CCR) for a list of vapor recovery system defects.
- The rule does not incorporate any periodic reverification testing requirements to ensure continued proper operation of vapor recovery equipment.

The proposed rule amendments address EPA's concerns by incorporating the CCR reference to the defects list into the regulation and adding requirements for annual reverification testing for all facilities with vapor recovery equipment. It should be noted that approximately 1/3rd of the gasoline dispensing facilities (GDFs) in the District are already required to perform reverification testing by CARB Executive Orders and/or District permit conditions.

The proposed amendments also include several minor administrative revisions. Theses changes will remove redundant language, clarify the scope and applicability of existing requirements, and make the regulation consistent with state law. They will not impose any additional requirements on new or existing stations.

BACKGROUND

A. Number of Sources

There are slightly more than 2,600 GDFs in the District. Of these, approximately 1,700 are retail facilities that sell fuel directly to the general public. The balance are non-retail stations located at a wide variety of facilities such as industrial plants, airports, car rental agencies, and other businesses which operate fleets of vehicles or mobile equipment which need to be refueled on-site. Although some non-retail locations have large throughputs, retail stations dispense the overwhelming majority of gasoline in the District and are the primary source of emissions from this source category.

B. Amount of Ozone-Forming Pollutants

Gasoline is a highly volatile organic liquid with a Reid vapor pressure (RVP) varying from 7.0 psi to 11.0 psi according to seasonal requirements. As such, there is a large potential for emissions of volatile organic compounds (VOCs) whenever gasoline is stored, loaded, or handled. GDFs are one of the major potential sources of VOC emissions in the Bay Area. In absence of any controls whatsoever on GDFs, VOC emissions from this category would be approximately 73 tons/day.

C. Method of Control

The primary technique for controlling emissions from GDFs is vapor recovery. Vapor recovery systems collect and contain vapors generated during the handling of volatile organic liquids that would otherwise be emitted to the atmosphere. Vapor recovery equipment for GDFs falls into two categories: Phase I and Phase II. Phase I vapor recovery captures vapors generated when gasoline is transferred from a tanker truck (aka cargo tank) into a stationary storage tank. Phase II vapor recovery collects vapors when individual motor vehicles are being refueled.

D. State Regulation

The California Air Resources Board (CARB), under Health & Safety Code Section 41954, has sole authority for certifying vapor recovery systems and their components for use in California. Equipment vendors submit their systems to CARB for testing. Passing systems are issued an Executive Order, which sets specifications for the installation and operation of the system and lists allowable components and configurations. There are currently more than 80 Executive Orders in force for Phase I and Phase II systems. Because of CARB's leadership role in the field, many jurisdictions outside California also allow only the installation of vapor recovery systems and components certified by CARB.

E. District Regulation

The BAAQMD has regulated gasoline dispensing operations since 1972. Currently, GDFs are regulated under Regulation 8, Rule 7. Over the years Reg. 8-7 has been modified and its applicability expanded to the point where almost all GDFs, both retail and non-retail, are subject to some control requirements.

Reg. 8-7 also sets standards for both the operation and maintenance of vapor recovery systems and general housekeeping requirements that apply to all stations.

Over 97% of the GDFs in the District (about 2,500 stations) are required to have Phase I vapor recovery. Almost all of the stations with Phase I are also required to have Phase II recovery. (All stations with Phase II controls are required to have Phase I controls.) Reg. 8-7 includes several exemptions from Phase I and Phase II requirements based on size limitations and technical considerations. Most GDFs exempt from vapor recovery requirements are small, non-retail facilities with low throughputs that service a limited fleet of vehicles. Many refuel vehicles such as boats or aircraft for which Phase II vapor recovery is not effective.

Reg. 8-7 functions primarily as the District's implementation of state law. It has been revised numerous times over the years in response to changes in legal requirements and advances in vapor recovery technology. The rule was last amended in November 1999.

PROPOSED AMENDMENTS

Periodic Testing Requirements

- **Phase I periodic testing** *(proposed Section 301.13)*

  Minimizing vapor leaks reduces fugitive emissions from GDFs and enhances the vapor collection efficiency of both Phase I and Phase II vapor recovery systems. The proposed section will require all GDFs equipped with Phase I vapor recovery to demonstrate compliance with the vapor tightness standards annually by passing a pressure decay test conducted using CARB-approved source test procedures per proposed Section 8-7-602.

  All GDFs with Phase II vapor recovery are required to also have Phase I controls under Section 8-7-309. All stations with Phase II controls, as well as stations equipped with Phase I but exempted from Phase II will be subject to this requirement.

  Currently, approximately 40% of the retail and 10% of the non-retail stations in the District are already required to perform annual pressure decay tests by conditions on their permit.

  Section 301.13 does not reference a specific standard. Unlike many test procedures, CARB-approved pressure decay test methods include a formula to calculate the allowable pressure decay for various GDF equipment configurations. Essentially, the standards are incorporated into the test method.

- **Phase II periodic testing, Balance systems** *(proposed Section 302.14)*

  Balance-type Phase II vapor recovery systems achieve maximum vapor collection when the pressure drop along the vapor path between the nozzle/fill pipe interface and the tank headspace is at a minimum. This pressure drop is measured using a back pressure test method such as District Source Test Method ST-27 or CARB Test Procedure 201.4. Proposed Section 302.14 would require stations operating balance Phase II

systems to pass this test annually. The District does not currently require periodic performance of this test for any station equipped with a balance system.

- **Phase II periodic testing, Vacuum Assist systems** *(proposed Section 302.15)*

The CARB Executive orders for all currently available vacuum assist Phase II systems require the systems to pass an annual performance test demonstrating effective vapor collection. For most systems, the Executive Orders specify an Air-to-Liquid (A/L) ratio test. However, some Executive Orders (such as G-70-187 for the Healy 400 ORVR system) specify different test methods. Each Executive Order sets the standards that must be met for each required test.

All stations operating vacuum assist systems in the District are currently required to perform this testing annually under both the CARB Executive Order and the conditions of their District permit. Proposed Section 302.15 would incorporate these annual testing requirements into Regulation 8-7.

Although back-pressure testing is required for new and modified vacuum assist systems at start-up, periodic back pressure testing is not necessary for vacuum assist type systems. Unlike back pressure test methods for balance-type systems, which measure the pressure drop along the entire vapor path from the nozzle to the headspace, the back pressure tests on vacuum assist systems only measure the pressure from the dispenser riser to the tank headspace. This test can only detect blockage in the underground vapor return piping.

Blockage problems generally occur in nozzle/hose assembly and the internal dispenser piping where they can be detected using an A/L test. Blockage in properly installed underground piping is not a significant problem. A back pressure test performed at start-up will establish that the vapor return piping is installed correctly. Periodic back pressure testing on vacuum assist systems is redundant and unnecessary.

- **Exemptions, Periodic testing requirements** *(proposed Section 8-7-116)*

Subsection 8-7-116.1 will exempt stations equipped with CARB-certified In-Station Diagnostic (ISD) systems from the periodic testing requirements of Sections 8-7-301 and 302. ISD systems will continuously monitor system performance, minimizing or completely eliminating the need for periodic performance testing to maintain effective vapor recovery. Provided a system is certified by CARB and is commercially available, ISD systems will be required for new and modified GDFs dispensing more than 1.8 million gallons of gasoline per year starting April 1, 2003. It is expected that the ISD Executive Orders will specify an appropriate level of periodic testing for ISD-equipped stations.

Subsection 8-7-116.2 will offer a limited exemption from periodic testing for stations starting up new or modified equipment. All stations undergoing modifications are required by conditions of their Authority to Construct (A/C) to perform one or more performance tests during the start-up period (generally the first 30 days of operation) to demonstrate that the equipment was installed properly. Tests to be performed include all those required by Sections 8-7-301 and 302. Stations which fail to obtain an A/C are required to perform the start up tests by Section 8-7-406.

This section waives periodic testing requirements for tests that are otherwise required to be performed during the start-up period. This will

prevent stations from being forced to rush their testing by an annual periodic testing deadline falling early in the start-up period. Testing immediately upon start-up is neither desirable nor necessary. Some systems are even required to wait at least 10 days after start-up before testing to allow any defective components to fail.

This exemption will allow stations to test new and modified equipment in an orderly fashion pursuant to the conditions of their A/C.

Additional Revisions

In addition to the periodic testing requirements enumerated above, staff is proposing several other minor revisions to Regulation 8-7 to help clarify the meaning and intent of the regulation, make it consistent with ARB requirements and other state law and improve its overall enforceability and effectiveness. The most significant of these are as follows:

- **Clarify ORVR Phase II exemption** *(revised Section 8-7-112.9)*

  This section was adopted to exempt stations refueling ORVR-equipped fleets (such as car rental agencies) from Phase II vapor recovery requirements. This exemption is in conflict with the Airborne Toxics Control Measure (ATCM), which requires Phase II controls on all retail stations dispensing more than 480,000 gallons of gasoline per year The revision clarifies that this exemption does not override state requirements.

- **Delete Subsection 8-7-11.2**

  This section exempted tanks installed before October 1, 1974 with a throughput of less than 60,000 gallons per year from Phase I vapor recovery requirements until June 1, 2000.

  This deadline has passed. All such tanks must install Phase I controls unless exempted by another subsection.